

COMMONWEALTH OF KENTUCKY
BEFORE THE ENERGY REGULATORY COMMISSION

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In the Matter of:

THE NATURAL GAS LEAK INCIDENT ON)	
L. G. & E. CO.'S GAS DISTRIBUTION)	
SYSTEM AT VINE GROVE ELEMENTARY)	CASE NO. 7775
SCHOOL, HARDIN COUNTY, KENTUCKY)	

O R D E R

At about 1:30 p.m. on Thursday, August 23, 1979, at Vine Grove Elementary School, Hardin County, a school employee pulled the breaker switch of an electric fuse breaker box located on a wall between the kitchen and lunchroom of the school. Apparently a small explosion resulted. The principal heard a "poof noise." No eyewitnesses personally testified on this point. Principal Warden Thomas assumed that an electrical short had caused the noise. He called the maintenance supervisor, Mr. Bud Patterson. Mr. Patterson's crew checked the fuse box and found it in proper order. No one who investigated the source of the problem detected any smell of gas on August 23, 1979. No problems with the electrical system were found by the school employees on that date and the school crew working on the problem left the school at 2:30 p.m.

At about 9:10 a.m. on Friday, August 24, 1979, Paul Watts, a 24-year employee and subforeman for LG&E and his helper received a mobile radio call from the company's Muldraugh office stating that a Class 1 leak was present at the school. This call was made by Mr. Patterson based on the assumption that the problem might have been with gas, although again there was no presence of a gas odor. Subforeman Watts was some 14 miles away and spent approximately 30 minutes at what he described as a routine matter at a replacement gas line construction site en route. He testified that he arrived at the school at about 10:45 a.m. However, LG&E records indicate that he arrived at 11:30 a.m. Upon arrival he proceeded at once to cut off the gas from the main valve and to cut off all

gas appliances. Although gas could not be detected by smell by either Mr. Watts or the principal, Watts tested various points with his explosion meter and found gas in a range of 4 - 4.5%, which is 90% of the lower explosion limit of 5%. This concentration was near the point where an explosion is possible. Gas will not explode if the concentration is of too little or too much quantity. Watts testified that he advised the principal and later the superintendent to get the children out at about 11:00 a.m. The principal denied this and Principal Thomas states that Watts only advised him to temporarily evacuate a lunchroom and that Superintendent Charlie Akins instructed him by phone to also evacuate three classrooms, which he did. The children stayed in school until their normal dismissal time that afternoon. Mr. Akins did not attend the hearing and was permitted to file a statement.

The service line was dug up that Friday morning from the meter to its connection with the main at the property line and plugged. Ordinarily, cutting off the gas results in its dissipation into the atmosphere. The leak had occurred in the service line and migrated into the building possibly because of its inability to migrate through an outside newly paved area.

Watts found defective threads on a 4" valve on the meter loop and understood that the school would replace the valve and retest the house line before his return the next day. When Watts returned to his office he received a call from Mr. Patterson, advising him not to return until 9:00 a.m. Monday because the valve wouldn't be replaced by the school before then. It appears that the local fire chief, Mr. Lee, was notified of the gas leak at the school quite by accident on either Saturday, August 25, or Tuesday, August 28, 1979. On Monday, August 27, 1979, the school opened as usual with Mr. Thomas intending to serve the children a cold lunch.

When Watts returned at about 9:00 a.m. on August 27, he found the same concentration of gas he had found the previous Friday. It was then that Watts realized that the gas was trapped and he told Principal Warden Thomas to get the children out of the building. By Watts' account this was the second time he so advised the principal. Thomas agreed that this was the case on Monday but denied Watts' assertion as to the Friday recommendation. The children were not immediately taken from

the building, instead Principal Thomas ordered school busses after a discussion with Superintendent, Akins. The children remained at the school and inside the building until approximately 10:45 a.m. when school busses arrived to transport them home.

The utility theorized that the gas did not smell because the odor had leached into the soil. A ditch had to be dug around the school building wall and the ground aerated and an air compressor and pump employed to get the trapped gas out.

The Energy Regulatory Commission received a telephone report of the incident from an LG&E employee at approximately 9:30 a.m. on Tuesday, August 28, 1979. The United States Department of Transportation was also notified by phone at 11:00 a.m. on the same day. On September 18, 1979, the Energy Regulatory Commission received a copy of the utility's written report to the United States Department of Transportation. On October 25, 1979, Mr. R. E. Bruflat, an Energy Regulatory Commission gas inspector, submitted a report to his supervisor relating to the incident in which he listed several alleged violations, including the lack of a written and filed "Emergency Plan." He recommended that LG&E be ordered to show cause why they should not be fined for two of the violations:

(1) failure to make prompt and proper telephonic notice of this school incident (CFR191.5).

(2) failure to make periodic checks to determine and keep records of proper odorization level (807 KAR 50:035 Gas Section 6).

On April 23, 1980, the Commission convened a hearing at its Frankfort offices at which time all persons wishing to make a statement or testify concerning the matter were given an opportunity to do so. The Commission stated at the onset that the main purpose of the hearing was not to engage in a contest of fault but to determine what deficiencies if any existed for the purpose of making whatever corrections might be necessary to avoid injury to person or damage to property in the future, particularly gas leaks in public buildings and more specifically those in schools. No person was injured and there was no property damage to the school

as a result of the gas leak.

The Federal Register of February 22, 1979, contains a notice of proposed rule making by the United States Department of Transportation soliciting comments on the proposal which would require a specific interval between inspections for odorant in the gas. The notice states that "The term 'periodic sampling' in Section 19265F is vague. A consistent interpretation cannot be made as to how often or where, in a pipeline system, samples can be taken." The utility outlined the procedure it had in use prior to this incident which consisted of writing "adequate" or "inadequate" as to the odorant level on trouble call forms when service calls were made.

A leak survey was performed in the area on July 24, 1979, with no incidents reported. Ironically the report of the leak survey was received by LG&E on August 30, 1979. The survey included transmission and distribution lines "all the way to the stopcock." While the gas leak could have existed on the date of the leak survey and not been detectable, the instrument used for that survey was very sensitive and would pick up 2 or 3 parts of gas per million parts and would even pick up the fumes from an automobile or a cigarette. The utility introduced evidence that it had embarked on an inspection program in which checks for odorant level are made at two points in each town or distribution systems weekly and an inspection report is completed which contains a space for the odorant level information.

The company estimates the additional cost of the checks and recordkeeping to be approximately \$15,000 for 1980. LG&E estimates its total training expenditures for field personnel for 1980 to be approximately \$90,000.

A Mr. Hargin, a Vine Grove farmer, testified that he was at the school on Saturday and was informed by one of the employees that "there was a 100% gas leak in the walls" and that he interpreted this to mean that it was "full of gas." He testified that if he had had a gas leak in a residential basement and a

minor explosion that he would have gotten out of the building "pretty quick." Principal Thomas testified that LG&E employee Watts used the word "evacuate" the lunchroom on Friday. Watts denied that he ever used such a word but instead advised Thomas and the superintendent that the children should "get out of the building," and that he further advised the superintendent "we've got gas in the walls." Thomas acknowledged that during the course of the hearing Watts had difficulty in pronouncing the word "evacuate." Principal Thomas was asked a number of times as to whether he was or is now under any directive from anyone with respect to "evacuating or not evacuating" where there is gas in the atmosphere of the school building. Mr. Thomas never responded directly to this question. He did acknowledge that there were directives from the Board of Education and that he relied on Mr. Watts with respect to any plans to evacuate the children. Principal Thomas testified that in order to evacuate the building it was necessary for him to call into the central office. When asked if he thought it would have been better to have gotten the children out first on Monday prior to the arrival of the school busses he responded, "well, it's possible." He testified that if he had received a bomb threat or if a fire had been discovered he would have immediately evacuated the children. When asked what he would do today if he found out there was a gas leak he responded, "I would probably evacuate." (Emphasis added) He was further asked, "That's still a question in your mind, isn't it?" He responded, "Very likely. I mean, very likely, I would. You know hindsight is much better than your foresight."

When Thomas was asked if he had called the superintendent for authority, he responded, "Not necessarily." Thomas testified that it takes about 2 1/2 minutes to clear the building with a fire drill. He testified that he never considered a fire drill. Thomas had no conversation with anyone over the weekend as to whether or not school would be open on Monday. Thomas' estimate of the time lapse between the time he was told to get the children out and their departure on the school busses was some 45 minutes to one (1) hour. The children did not go outside until the busses

arrived. He assumed that the superintendent contacted someone to obtain the busses and he had no understanding as to when the busses might arrive.

Mr. Patterson testified that if a gas leak exists that either he, a maintenance man or the principal calls the utility but that he did not know who made the decision to evacuate the children from the school. He testified that he was not aware of any procedure to evacuate children in the event of gas leaks but that fire drills were held once a month and that in the event of a fire, they evacuate. He gave as an example, a recent fire in the chemistry lab at the James T. Alton School. He was unable to make any distinction between gas and fire. When asked if the principal relied upon him as his technical advisor in such matters he responded, "not necessarily so." He testified that subsequent to this incident the school has purchased instruments which would detect the presence of natural gas. Mr. Patterson had received no training in gas matters and had no previous background in gas other than dispatching repairmen to fix gas leaks. He further testified that he would consider a more cautious approach for any future incidents.

Mr. Patterson's crew is now checking the schools on a scheduled basis with gas detectors, approximately once a month. Mr. Patterson testified that he was unaware of any standard to which he was held by his supervisors for this or similar problems including fire hazards, gas problems and electrical problems. He had heard from the principal that there were some emergency procedures put out by the state and by the board but didn't know whether it would cover this situation. He concluded that he was the person with responsibility for the safety of the gas and electrical systems at the schools. He stated that he notifies the principal in the case where a gas leak is discovered, but he has no authority to deal with the problem of whether the building should be evacuated. Principal Thomas characterized Mr. Patterson as an expert and Mr. Patterson stated that he was not. He was unaware that gas might not smell.

Patterson testified that the decision as to whether to have

school on Monday was not Mr. Watts' decision to make, but that knowing the gas would normally dissipate under these circumstances that Patterson thought that they could have school on Monday.

Patterson acknowledged that it would be better and simpler to evacuate the children when there was a gas leak. During a subsequent incident at another school the children were evacuated. When asked whether he would evacuate if he had the authority and with the knowledge of a gas leak, he responded. "Where is it and how bad is it? Is it just somebody passed by and sniffed it or can you hear it spewing out? Is there a danger of a fire?"

It should be repeated that the context of this proceeding was such that the Commission was attempting to arrive at a fair and reasonable solution for safety concerns.

FINDINGS OF FACT

The Commission after consideration of all the foregoing and all other evidence of record and begin advised FINDS:

1. That the violation alleged by the Commission employee with respect to phone notice is in reference to a federal regulation which has not been adopted by Kentucky. LG&E has not violated 807 KAR 50:025 Section 23 which requires the utility to notify the Commission where a fatality, serious injury or substantial property damage results from a gas incident. There is a need for revising the Commission's regulation so as to specify more fully the circumstances which require telephonic notice to the Commission. We note that there is a further need for the Commission to update its gas regulations in that recent amendments have been made to the federal regulations.
2. That the allegation of failure to make periodic checks for odorant and keep records of such checks is pursuant to an existing Commission regulation, 807 KAR 50:035 Section 6, which sets forth this requirement. The record indicates that the utility did not perform odorant checks on any scheduled basis. Webster defines periodic as "occurring or recurring at regular intervals." The LG&E odorant checks were made in response to trouble calls, new service connections, etc., and apparently never on any

scheduled basis. The utility failed to make periodic checks on odorant level prior to this incident. Despite the admitted ambiguity of the word "periodic" it would at least imply some consistency of intervals between checks.

3. That subsequent to this incident the utility has made checks for odorant level at two points in each town or distribution system weekly. The proposed federal regulation defining periodic has not been finalized and when it becomes final the Commission will consider the promulgation of a regulation which would similarly define "periodic." In the meantime, LG&E efforts to check the odorant level are viewed by this Commission as adequate.
4. That the utility failed to keep records of their odorant level checks. The utility's servicemen wrote on a service form whether the odorant level was "adequate" or "inadequate." However, prior to this incident no space was provided on the form for this entry and apparently there was no segregation of information. Inadequate record keeping is not in compliance with the regulation. The record keeping prior to the incident was inadequate and therefore failed to comply with the regulation.
5. That the utility has amended its reporting and record requirements so as to require the reporting of samples on odorant and is complying with the regulation.
6. That the utility has defined gas leaks such as the one at Vine Grove Elementary as a Class 1 leak. This means that the utility employees are required by the utility to make corrections to the gas system prior to leaving the premises. The utility's representatives acted reasonably in promptly terminating gas service to the facility and in cutting off all gas appliances. A Class 1 leak under the utility's policy statement required that its employees give such gas leaks first priority. LG&E's subforeman should not have stopped on the way to Vine Grove Elementary to make a routine inspection of another project. In addition, he was not sufficiently knowledgeable concerning the company's policies and procedures in responding to gas

- leaks of the type described in the evidence. However, the conduct of Mr. Watts contrary to the LG&E directives and incompatible with the nature of the leak was to make a routine inspection on the way to the school.
7. That the utility subsequent to this incident has initiated extensive training programs for its employees and will spend a total of approximately \$90,000 to familiarize said employees with company policies and procedures and to further educate them on the subject of gas safety.
 8. That the Gas Section of the Commission's Division of Engineering Services make inquiries as to whether there is an odorant currently on the market which will not leach into the soil and whether, if such an odorant does exist, its use is feasible by gas utilities and report the results of such an inquiry to the Commission.
 9. That the school principal, upon being informed that a gas leak existed, should have evacuated the school immediately, and he failed to do so. The Commission believes from the evidence that he was advised to evacuate the school by the LG&E subforeman at the time of the subforeman's first visit to the school and on the following Monday.
 - 10.. That the principal failed to evacuate the school immediately even at the time he admitted he was told to "get out" by the LG&E subforeman and the Commission believes that it was some 1 ½ or more hours after he was told to get the children out before the children boarded the busses. Even then, certain school employees remained in the school. In the absence of a clear directive to the principal it is questionable as to whether an immediate evacuation of students would be ordered in the event of a reoccurrence of a gas leak.
 11. That the principal would not order an evacuation of the school in the event of a reoccurrence without prior approval from the superintendent of schools or "central office."
 12. That the school board, this Commission and the utility have written numerous pages of directives and regulations relating to safety, none of which are an adequate substitute for sound judgment. It is impossible to legislate good judgment. A particular individual should have this authority without the necessity of obtaining prior permission or concurrence to evacuate.

13. That immediate evacuation of public buildings, where a natural gas leak is suspected is the best course of action to be taken until an expert opinion can be obtained from the utility, the Commission or the fire marshall that the danger has been completely eliminated.

IT IS THEREFORE ORDERED:

1) That pending further orders of this Commission LG&E shall comply with the letter which has been distributed to all the gas utilities which sets forth the requirements of telephonic notice of gas incidents and said letter is incorporated herein by reference and made a part of this order.

2) That LG&E, by way of letter to the Commission, propose a permanent plan of compliance with the regulation requiring periodic check and record keeping of odorant inspections.

3) That LG&E file with the Commission its written emergency plan in compliance with 807 KAR 50:035, no later than twenty (20) days after the date of this order.

4) That LG&E advise the Commission, by letter, as to the permanency of the programs it has begun to train its employees and keep them educated on gas matters and the company's policies and procedures.

5) That LG&E and its employees respond to Class 1 gas leaks without any unreasonable delays occasioned by handling matters of a lesser priority than a Class 1 gas leak.

6) That LG&E provide in the information to its customers via its existing bill stuffers (or by other means the utility may designate) some space for information on the dangers of a natural gas leak. At a minimum this information shall advise the customer of the need to contact the utility. More specifically, the utility's attention to gas safety information (via the bill stuffers) shall be reasonably equal to that of electrical safety information. If no such electrical safety information is now disseminated then the gas safety informational request shall not be less than once every 12 months prior to or near the greatest seasonal use of gas.

IT IS FURTHER RECOMMENDED that an individual in each school building (and each public building) be given the authority and direction to order the evacuation of said building immediately upon the discovery or suspicion of a gas leak without prior approval or concurrence from any other person, and that the building remain unoccupied until a utility employee or a Commission representative or a fire marshall can give the assurances of an expert that the building is safe for occupancy.

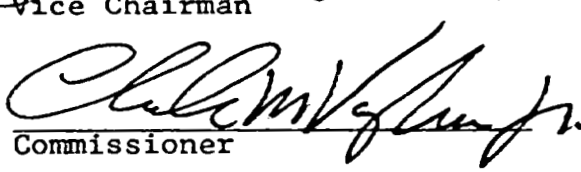
IT IS FURTHER ORDERED that the Secretary of the Commission forward copies of this order to appropriate officials having responsibility for such matters.

Done at Frankfort, Kentucky this 1st day of October, 1980.

ENERGY REGULATORY COMMISSION


Chairman


Vice Chairman


Commissioner

ATTEST:

Secretary